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**380041-347US**

**International Application with Annexes to International  
Preliminary Examination Report Incorporated**

## PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 310048-347	FOR FURTHER ACTION      See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US98/25875	International filing date (day/month/year) 07 DECEMBER 1998	Priority date (day/month/year) 08 DECEMBER 1997
International Patent Classification (IPC) or national classification and IPC IPC(7): B32B 3/00 and US Cl.: 428/195		
Applicant AVERY DIENNISON CORPORATION		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

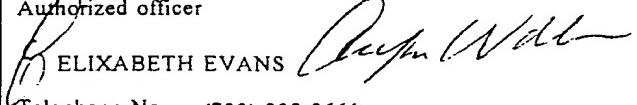
2. This REPORT consists of a total of 4 sheets.

This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority. (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 4 sheets.

3. This report contains indications relating to the following items:

- I  Basis of the report
- II  Priority
- III  Non-establishment of report with regard to novelty, inventive step or industrial applicability
- IV  Lack of unity of invention
- V  Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI  Certain documents cited
- VII  Certain defects in the international application
- VIII  Certain observations on the international application

Date of submission of the demand 08 JULY 1999	Date of completion of this report 11 FEBRUARY 2000
Name and mailing address of the IPEA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231	Authorized officer  ELIXABETH EVANS
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## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

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**I. Basis of the report**

1. This report has been drawn on the basis of (*Substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments*):

 the international application as originally filed. the description, pages (See Attached), as originally filed.

pages \_\_\_\_\_, filed with the demand.

pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_.

pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_.

 the claims, Nos. (See Attached), as originally filed.

Nos. \_\_\_\_\_, as amended under Article 19.

Nos. \_\_\_\_\_, filed with the demand.

Nos. \_\_\_\_\_, filed with the letter of \_\_\_\_\_.

Nos. \_\_\_\_\_, filed with the letter of \_\_\_\_\_.

 the drawings, sheets/fig (See Attached), as originally filed.sheets/fig \_\_\_\_\_, filed with the demand.sheets/fig \_\_\_\_\_, filed with the letter of \_\_\_\_\_.sheets/fig \_\_\_\_\_, filed with the letter of \_\_\_\_\_.

2. The amendments have resulted in the cancellation of:

 the description, pages NONE. the claims, Nos. NONE. the drawings, sheets/fig NONE.

3.  This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the ~~Supplemental Box~~ Additional observations below (Rule 70.2(c)).

4. Additional observations, if necessary:

NONE

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**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. STATEMENT**

Novelty (N)	Claims <u>1-14</u>	YES
	Claims <u>NONE</u>	NO
Inventive Step (IS)	Claims <u>1-14</u>	YES
	Claims <u>NONE</u>	NO
Industrial Applicability (IA)	Claims <u>1-14</u>	YES
	Claims <u>NONE</u>	NO

**2. CITATIONS AND EXPLANATIONS**

Claims 1-14 meet the criteria set out in PCT Article 33(2)-(4), because the prior art does not teach or fairly suggest a layered structure comprising a substrate and at least two controlled droplet-formed layers comprising an array of controllably-placed material volumes having a magnitude in the range of 25 to 1000 microns. The layered structure meets the industrial applicability requirements as it has utility in the art of label manufacture.

----- NEW CITATIONS -----

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**Supplemental Box**

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Boxes I - VIII

Sheet 10

I. BASIS OF REPORT:

This report has been drawn on the basis of the description,  
pages, 1-32, as originally filed.

pages, NONE, filed with the demand.  
and additional amendments:  
NONE

This report has been drawn on the basis of the claims,  
numbers, NONE, as originally filed.  
numbers, NONE, as amended under Article 19.  
numbers, NONE, filed with the demand.  
and additional amendments:  
Claims 1-14, filed with the letter of 08 December 1999.

This report has been drawn on the basis of the drawings,  
sheets, 1-10, as originally filed.  
sheets, NONE, filed with the demand.  
and additional amendments:  
NONE

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**I CLAIM:**

1. A controlled droplet-formed layered structure, comprising:

a substrate,

at least two controlled droplet-formed layers, each further comprising an array of controllably-placed material volumes having a thickness extent, each material volume having a selected magnitude in the range of about 25 to about 1000 microns and a selected position relative to adjacent material volumes, said array being formed by deposition of droplets of selected volume at selected locations with respect to one another.

2. The laminate of claim 1, wherein selected material volumes in at least one of the controlled droplet-formed layers are formed of different material than other material volumes in said droplet-formed layer, whereby the controlled droplet-formed layer comprises at least two differing materials.

3. A controlled droplet-formed layered structure, comprising:

a substrate,

at least two controlled droplet-formed layers, each further comprising an array of controllably-placed material volumes having a thickness extent, each material volume having a selected magnitude and a selected position relative to adjacent material volumes, said array being formed by deposition of droplets of selected volume at selected locations with respect to one another,

wherein selected material volumes in at least one of the droplet-formed layers are of different magnitude than other material volumes in the droplet-formed layer.

4. A controlled droplet-formed layered structure, comprising:

a substrate,

at least two controlled droplet-formed layers, each further comprising an array of controllably-placed material volumes having a thickness extent, each material volume having a selected magnitude and a selected position relative to adjacent material volumes, said array being formed by deposition of droplets of selected volume at selected locations with respect to one

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wherein the substrate comprises a controlled droplet-formed layer of material.

5. The laminate of claim 1, wherein the controlled droplet-formed layer is discontinuous and comprises an array of material volumes, wherein at a first selected location a material volume overlays the substrate and at a second selected location a material volume does not overlay the substrate.

6. The laminate of claim 1, wherein the first and second controlled droplet-formed layers comprise layers of a product selected from the following group: a film formed by depositing successive layers, a label having a plurality of layers, and a tape.

7. (Amended) A process for forming a laminate structure of which each layer has a controlled structure and a controlled materials composition within each layer, comprising:

a) providing a first material that can be formed into droplets;  
b) providing a substrate upon which droplets of the first material can be deposited;

c) forming an individual droplet of the first material having a controlled volume;  
d) projecting the droplet through the atmosphere to a desired location on the substrate in a controlled way;

e) providing a second material that can be formed into droplets;  
f) providing a substrate upon which droplets of the second material can be deposited, wherein the first material can form at least a part of the substrate upon which the second material is deposited;

g) forming an individual droplet of the second material having a controlled volume;

h) projecting the droplet through the atmosphere to a desired location on the substrate in a controlled way;

i) repeating steps of the process as required until the structure is formed, wherein previously deposited droplets form at least part of the substrate for further droplet deposition.

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8. The process of claim 7, wherein at least one of the layers comprising the substrate and the first material and the second material layers is a pressure-sensitive adhesive.

9. A controlled droplet-formed layered structure incorporating a pressure sensitive adhesive layer, comprising:

a substrate,  
at least two controlled droplet-formed layers, each further comprising an array of controllably-placed material volumes having a thickness extent, each material volume having a selected magnitude and a selected position relative to adjacent material volumes, said array being formed by projecting droplets through the atmosphere of selected volume at selected locations with respect to one another.

10. The controlled droplet-formed layered structure of claim 9, wherein the controlled droplet formed structure comprises a pressure-sensitive adhesive label.

11. The laminate of claim 1, wherein the substrate is a material selected from the group consisting of:

film;  
paper; and  
plastic.

12. The laminate of claim 1, wherein each material volume has a selected magnitude of about 15 to 500 microns in diameter.

13. The process of claim 7, wherein the substrate upon which droplets of the first material can be deposited comprises a material selected from the group consisting of:

film;  
paper; and  
plastic.

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14. The controlled droplet-formed layered structure of claim 9, wherein the substrate  
is a material selected from the group consisting of:

film;  
paper; and  
plastic.

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